

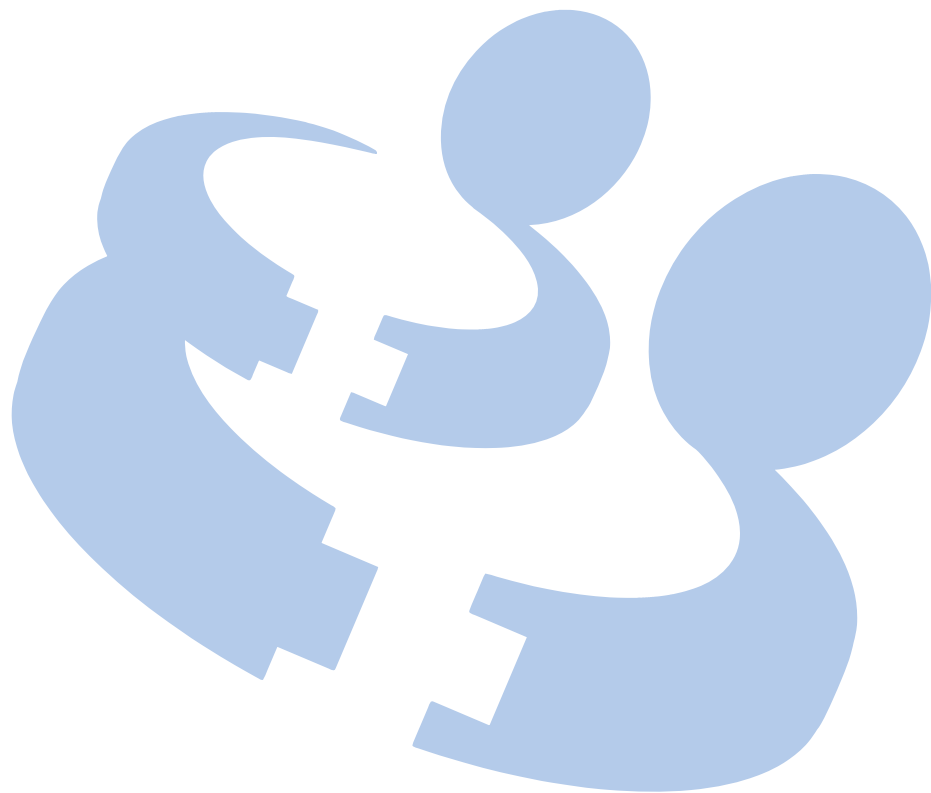


Precious Cargo

Protecting the Children Who Ride with You



Third Edition



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Protecting the children who ride with you is important. People expose children—many times every day—to the risk of death and injury by not restraining them properly in moving vehicles.

Neither the distance to be traveled nor the age and size of the traveler changes the need, for everyone, to use safety restraints.

The principles of occupant restraint apply to all motor vehicles in every country of the motorized world.

If all adults and older children in the United States wore properly the safety belts that are provided in the vehicles, thousands of highway fatalities would be prevented and many more thousands of injuries would be less serious.

The proper use of the safety restraint systems, provided by the vehicle manufacturer, and a

portable, add-on child restraint system, purchased by the vehicle owner, enhances the protection of small travelers in a crash.

Each year several hundred children under the age of five are killed while riding in motor vehicles. In addition, hospital emergency rooms care for thousands more who are injured in crashes.

With the proper use of child restraints, injuries to young children could be reduced dramatically, and more than one-half the deaths could be prevented.

The information in this booklet can help you protect your precious cargo, the children who ride with you.

What kinds of safety restraint systems are there?

Vehicle manufacturers provide several kinds of safety restraint systems.

The adult safety belt system consists of lap-only and lap-shoulder safety belts. Air bag systems work with safety belts but do not replace them.

The vehicle also may have a built-in, forward-facing child restraint.



Another safety restraint system is the add-on child restraint, purchased by the vehicle owner.

Be sure that the child restraint is designed to be used in a vehicle. If it is, the restraint must have a label saying that it meets Federal Motor Vehicle Safety Standards.

Although there is a wide variety of child restraints available, there are only four basic types: the infant car bed; the rear-facing infant seat; the forward-facing child seat; and the booster seat.

The convertible child restraint can serve as either a rear-facing infant seat or a forward-facing child seat. The combination child restraint can serve as either a high-back, belt-positioning booster seat or a forward-facing child seat.



When do infants and young children need to use child restraints?

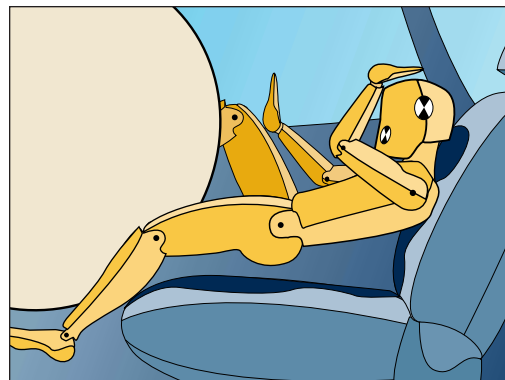
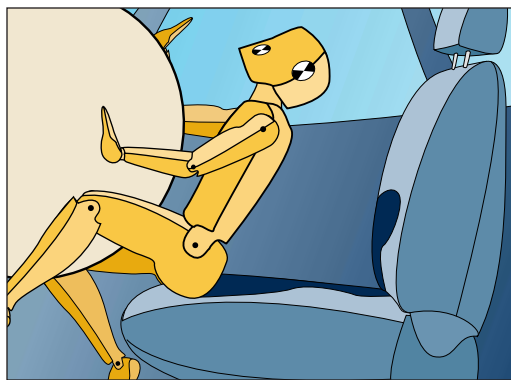
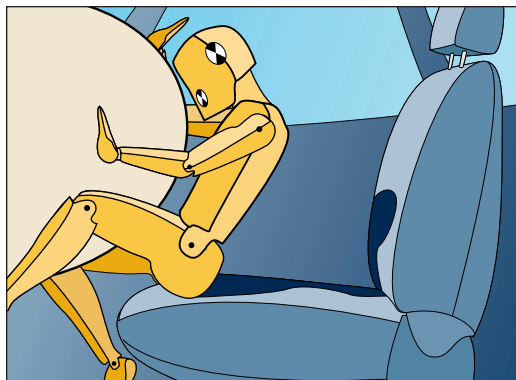
Every time infants and young children ride in vehicles, they should have the protection provided by appropriate restraints. People need to understand how necessary it is to use safety belts and child restraints.

The body structure of a young child is quite unlike that of an adult or older child, for whom the vehicle's safety belts are designed. A young child's hip bones are still so small that a vehicle's safety belt may not remain low on the hip bones, as it should. Instead, it may settle up around the child's abdomen. In a crash, the belt then would apply force on a body area unprotected by any bony structure. This alone can cause serious or fatal injuries.

Infants need complete support, including support for the head and neck. This is necessary because an infant's neck is weak

and its head weighs so much compared with the rest of its body. In a crash, an infant in a rear-facing seat settles into the restraint, so the crash forces can be distributed across the strongest part of the tiny body, the back and shoulders.





Accident statistics show that children are safer if they are properly restrained in a rear seat.

Another reason to restrain children properly, in a rear seat, is the vehicle's frontal air bags, which are designed to restrain adults. Air bags have to inflate very quickly, faster than a person can blink an eye, and with great force. Serious injury, and even death, can result for

anyone—especially a child—who is up against, or close to, a frontal air bag when it inflates.

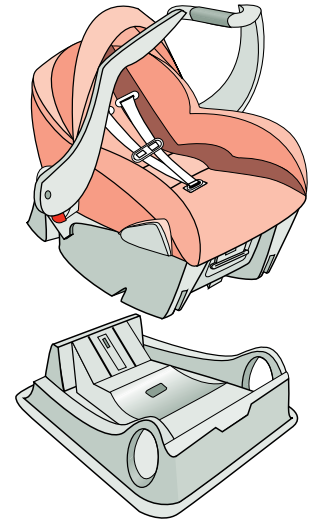
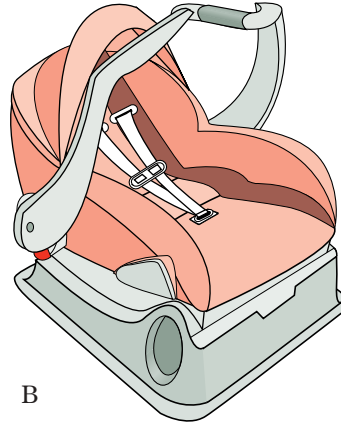
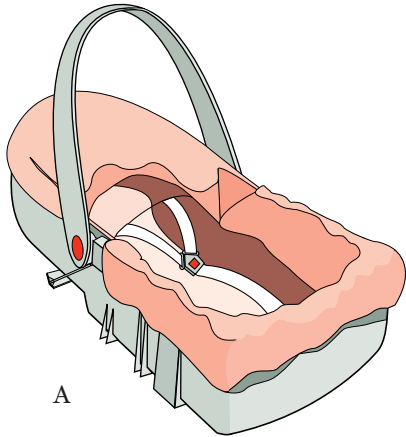
Infants and young children, who cannot make correct decisions for themselves, depend upon others to protect them. All states, the District of Columbia, Puerto Rico, and the U.S. Territories have laws saying that children, up to some age, have to be restrained in motor vehicles.

What are the different types of add-on child restraints?

Add-on child restraints, which are purchased by the vehicle's owner, are available in four basic types.

An *infant car bed* (A), a special bed made for use in a motor vehicle, is an infant restraint system designed to restrain or position an infant on a continuous flat surface. Make sure that the infant's head rests toward the center of the vehicle.

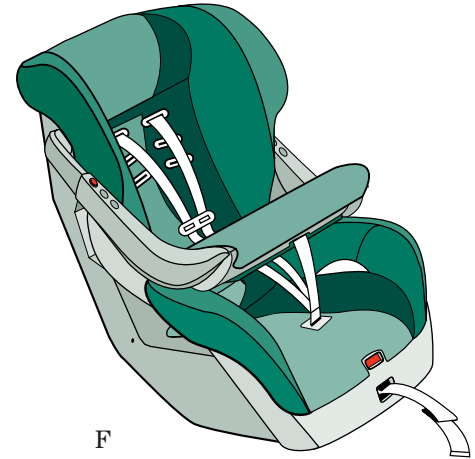
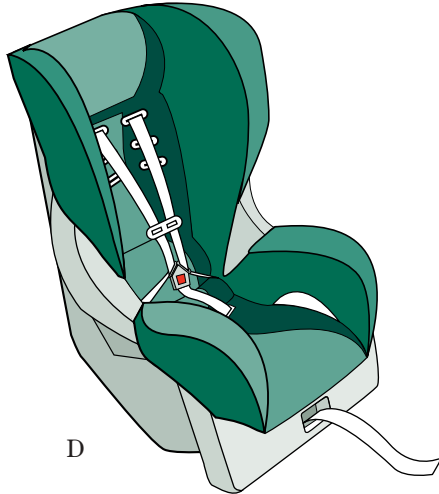
A *rear-facing infant seat* (B-C) is a child restraint system that positions an infant to face in the direction opposite to the normal direction of travel of the motor vehicle. Rear-facing seats are designed for infants of up to at least twenty pounds, around 19 to 26 inches in height, and up to at least one year of age. It is necessary that this restraint face the rear, so the infant's head, neck, and body can have the support they would need



in a crash. Some infant seats come in two parts. The base stays secured in the vehicle, and the seat snaps in and out.

A *forward-facing child seat* (D-F) is a child restraint system that positions a child upright to face in the normal direction of travel of the motor vehicle. These forward-facing seats are designed to help protect children, at least one year of age, who are from 20 to 40 pounds or more and about

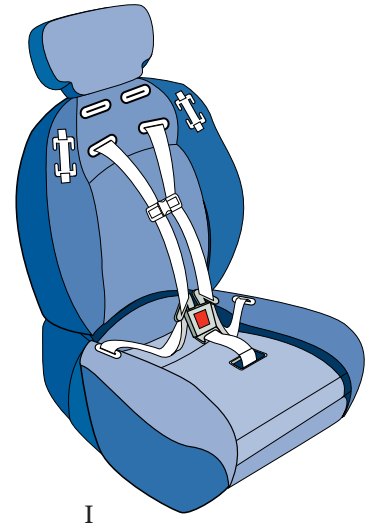
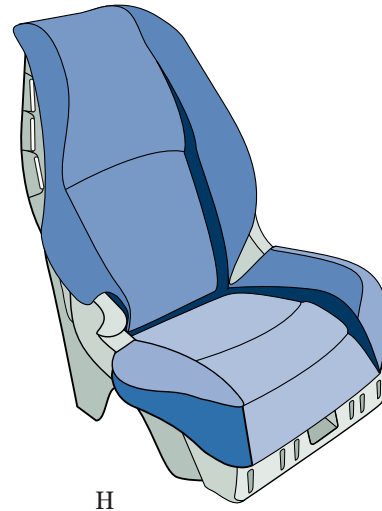
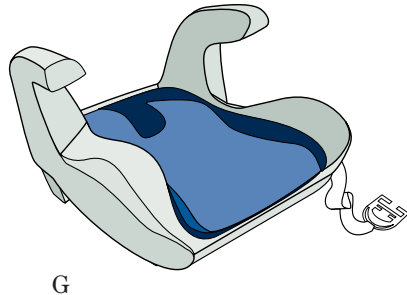
26 to 40 inches in height, or up to around four years of age. A convertible child seat is a restraint system designed to be used as either a rear-facing infant seat or a forward-facing child seat. Some convertible seats are designed to be used rear-facing for infants who weigh well over twenty pounds. An infant should ride rear-facing for as long as its growing size will permit, up to the weight and other limitations of the particular child seat.



A *booster seat* (G-I) is a child restraint designed for use by children who are about 40 to 80 pounds and about four to eight years of age. It is designed to improve the fit of the vehicle's safety belt system. Belt-positioning booster seats have no back or a high back. A combination seat (I) is a restraint system designed to be used as either a high-back, belt-positioning booster seat or a forward-facing child seat, with an internal five-point harness. A booster seat also can help a child to see out the window.

For most of the basic types of child restraints, there are many different models available. Selection of a particular child restraint should take into consideration the child's weight, height, and age. The instructions that come with the restraint state weight and height limitations.

In addition, there are many kinds of restraints for children with special needs.



Where in the vehicle should add-on child restraints be secured?

Placement of add-on child restraints is important. Children are safer if they ride in a rear seat; therefore, child restraints should be secured in a vehicle's rear seat, including an infant or child riding in a rear-facing infant seat or a forward-facing child seat, and an older child riding in a booster seat.

A rear-facing infant seat should never be secured in front of an active frontal air bag. In a crash, the rapidly inflating air bag could strike the back of the restraint with such force that the infant could be injured seriously or even killed.

If a forward-facing child seat must be secured in the vehicle's right front seat, the seat should be moved back as far as possible. But it is better to secure the restraint in a rear seat.



What is the proper way to use add-on child restraints?

There are two steps in this process.

First, the add-on child restraint must be secured properly to the vehicle. All add-on child restraints may be secured to the vehicle with the vehicle's safety belt system and, for a restraint with a tether strap, a special anchor on the vehicle.

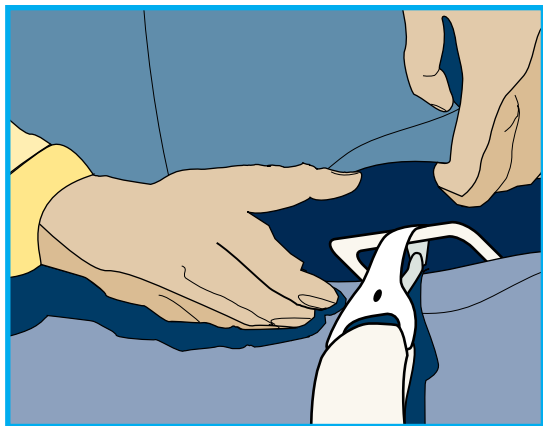
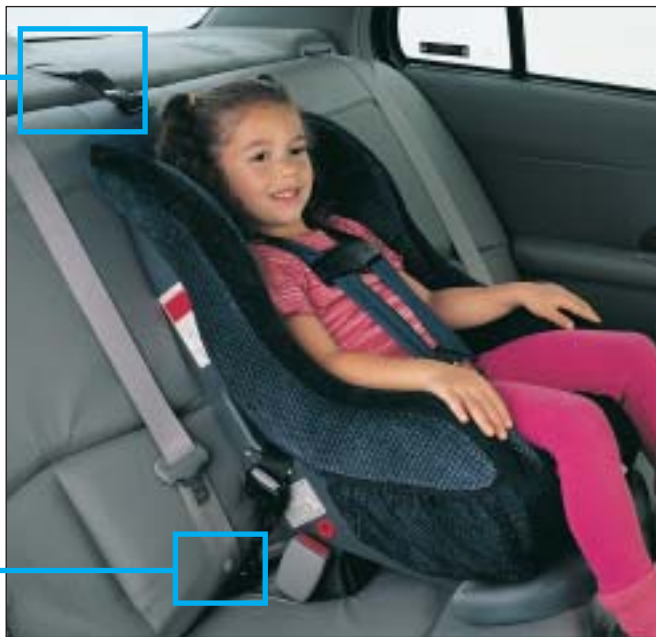
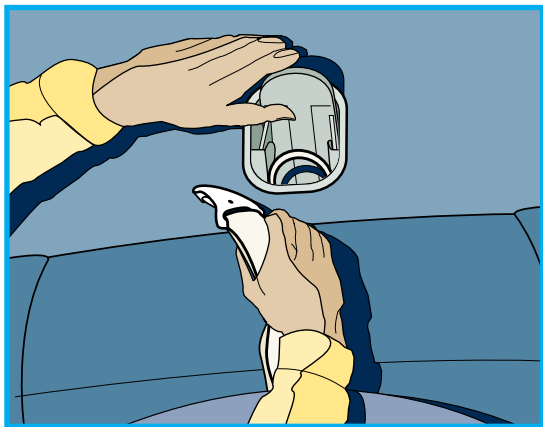
Passenger vehicles and certain child restraints manufactured after August 2002, however, have a system called Lower Anchors and Tethers for CHildren (LATCH). This system, designed to make installation of child restraints easier, does not use the vehicle's safety belts. Instead, at some seating positions, it uses vehicle anchors and child restraint attachments to secure the restraint.

The LATCH system has three vehicle anchors. One of these is the top tether anchor. The other two

anchors are between the vehicle's seat cushion and seatback. An adjustable top tether strap on the child restraint attaches to the top tether anchor. Straps or other devices on the child restraint attach to the two lower anchors.

Both the vehicle owner's manual and the instructions that come with the child restraint contain specific information about securing the restraint to the vehicle. Each is important, so if either one of these is not available, obtain a replacement copy from the manufacturer.

Second, the child must be secured properly within the restraint itself. Within the basic types of add-on child restraints, there are several kinds available. Be sure to follow the instructions provided by the child restraint manufacturer.



How do child restraints work?

A child restraint system is any device designed for use in a motor vehicle to restrain, seat, or position children.

A built-in child restraint system is a permanent part of the motor vehicle. An add-on child restraint system is a portable one, purchased by the vehicle's owner.

All child restraints use either the restraint's internal harness system or the vehicle's safety belt system to secure an infant or child within the restraint.

A rear-facing infant seat provides restraint with the seating surface against the back of the infant. A harness system holds the infant in place and, in a crash, acts to keep the infant positioned in the restraint.

A forward-facing child seat provides restraint for the child's body with a harness and also sometimes with surfaces such as T- or tray-shields.

One system, the three-point harness (A), has straps that come down over each of the infant's shoulders and buckle together at the crotch.

The five-point harness system (B) has two shoulder straps, two hip straps, and a crotch strap.

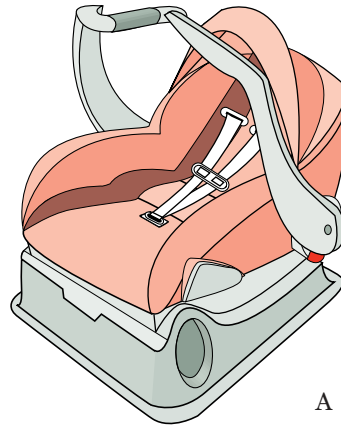
A shield may take the place of hip straps.

A T-shield (C) has shoulder straps that are attached to a flat pad which rests low against the child's body. A tray-shield (D) has straps that are attached to a wide, shelf-like shield that swings up.

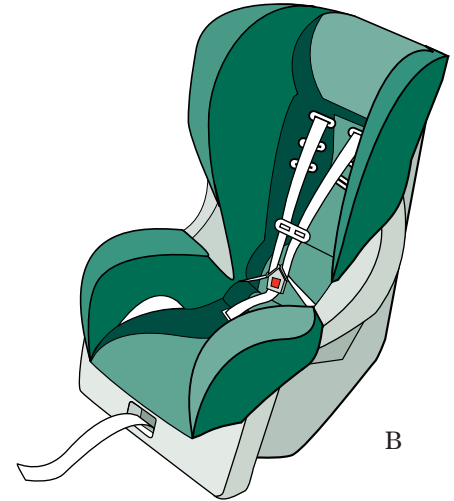
A belt-positioning booster seat uses the vehicle's safety belt system to provide restraint for the child's body.

The instructions that come with the child restraint, together with the vehicle owner's manual, will explain how to secure the child into the restraint.

When securing an add-on child restraint into the vehicle, refer to the instructions that come with the restraint, which may be on the restraint itself or in a booklet, or both, and to the vehicle owner's manual.



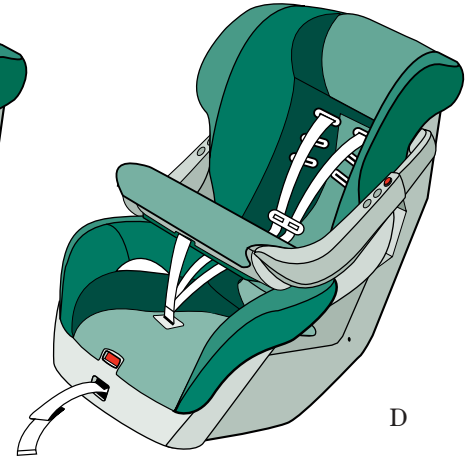
A



B



C



D

How do safety belts work?

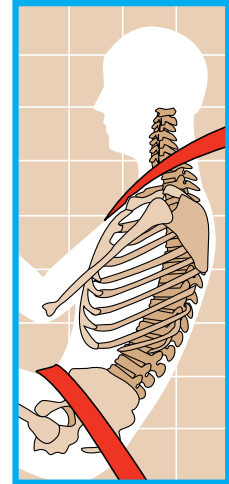
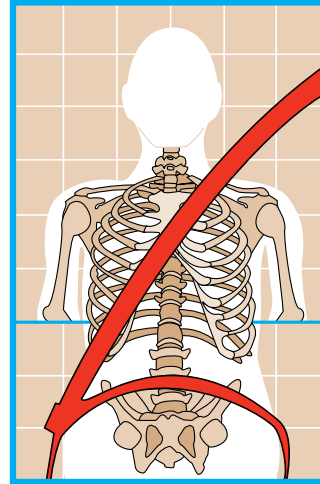
When people ride in or on anything, they go as fast as it is going. Take the simplest vehicle. Suppose it's just a seat on wheels. Put someone on it and get it up to speed. Then stop the vehicle. The rider does not stop, but keeps going until stopped by something.

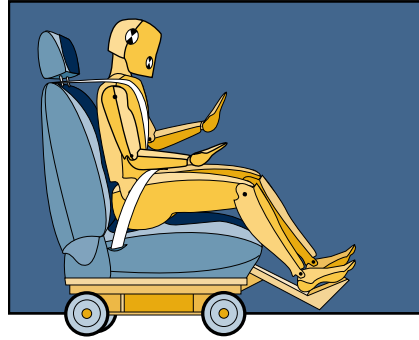
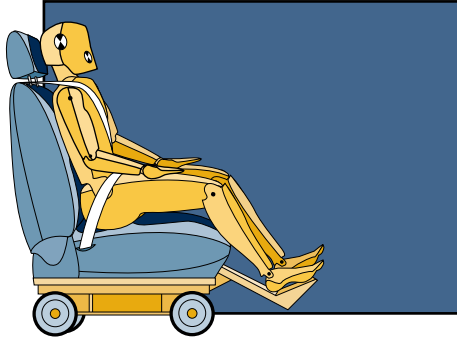
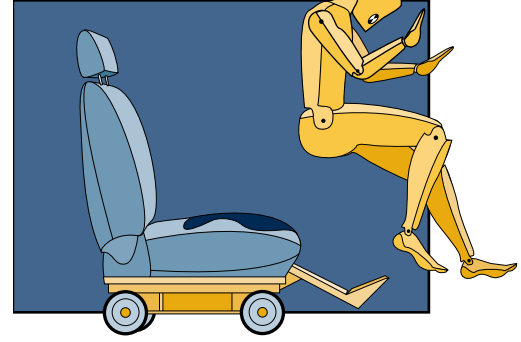
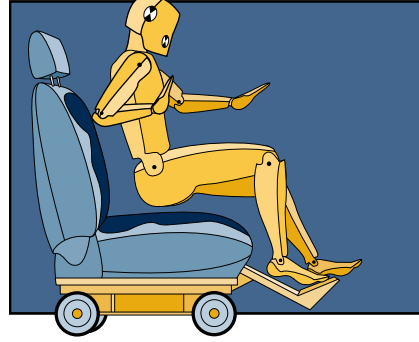
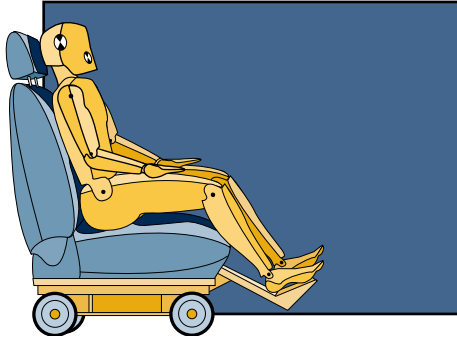
With safety belts, people slow down as the vehicle does; therefore, they get more time to stop.

When safety belts are worn properly, the body's strongest bones can better withstand the forces during a crash, while the vehicle's structure crushes and helps to protect by absorbing the energy of the crash.

In many crashes, people who use the safety belts can survive and sometimes walk away. Without

belts, they could have been badly hurt or killed. After more than 35 years of safety belts in vehicles, the facts are clear. In most crashes, buckling up does matter . . . a lot.





How do air bags work?

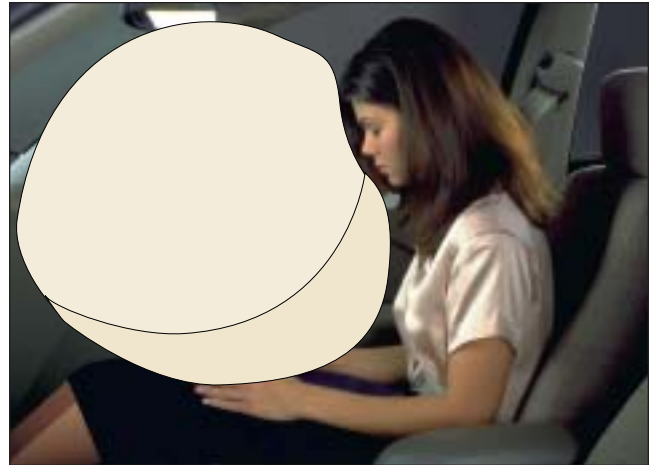
A frontal air bag is designed to inflate in certain frontal or near-frontal crashes.

A side air bag is designed to inflate in certain impacts at a side of the vehicle.

Air-bag sensing systems detect that the vehicle is stopping suddenly or, in the case of a side air bag, that there is a side impact.

The sensing system triggers the inflation of the air bag very quickly, faster than the blink of an eye.

One way to comprehend the power of an inflating air bag is to understand the weight an air bag can resist. An inflating frontal air bag can resist more than 2,500 pounds of force—well over a ton!



Safety belts must be used with air bags. Air bags distribute the force of the impact more evenly over the occupant's upper body, stopping the occupant more gradually.

Air bags plus lap-shoulder belts offer the best protection for adults and older children, but not for young children and infants. They need the protection that a child restraint system can provide.

Following a few precautions can ensure greater protection for all travelers.

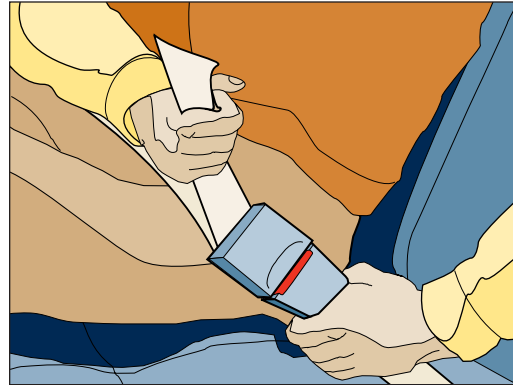
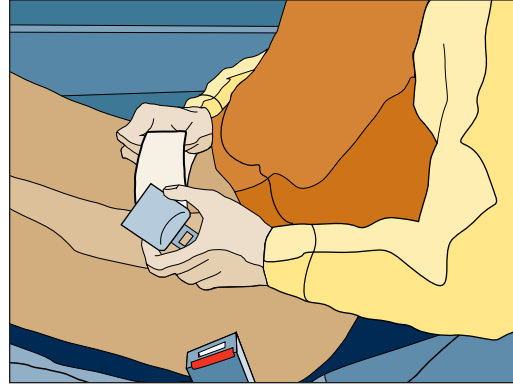
Those in danger from a passenger-side frontal air bag include a baby in a rear-facing infant seat; children, especially those riding unrestrained or improperly restrained; and anyone leaning up against, or very close to, the instrument panel.

In addition, objects should never be placed over an air bag or between an air bag and an occupant.

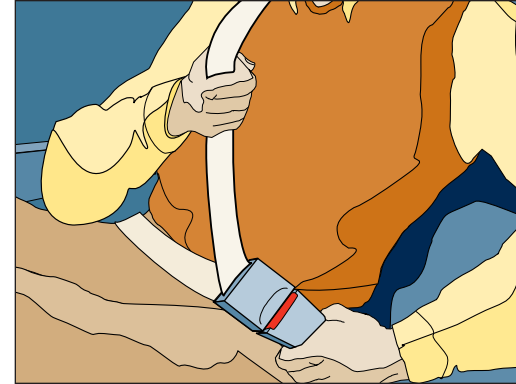
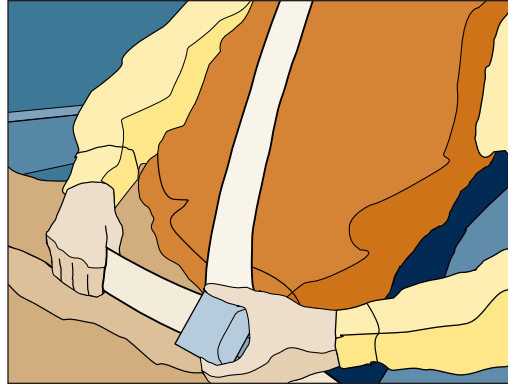
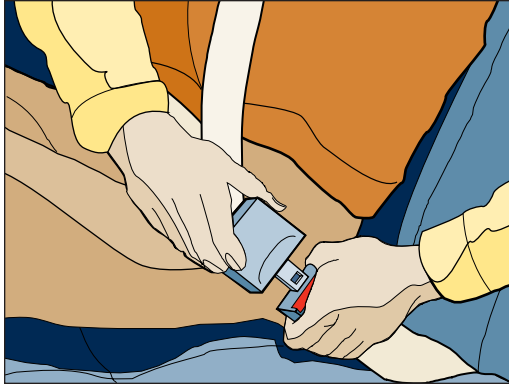
What is the proper way to wear safety belts?

Lap-only belts should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the strong pelvic bones, and makes it less likely that a person would slide under the lap belt. Sliding under the belt would apply force at the abdomen. This could cause serious or even fatal injuries.

Lap-shoulder belts go over the lap and across the chest and shoulder. The lap part of the belt should be worn in the same manner as a lap-only belt. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt-restraining forces. The shoulder belt should never be worn behind the back or under the arm. If the belt is worn this way, it could cause serious injury.



A safety belt must be used by only one person at a time. In a crash, the belt cannot spread the impact forces properly for more than one person. Two people wearing the same belt could be crushed together and injured seriously.



Should pregnant women wear safety belts?



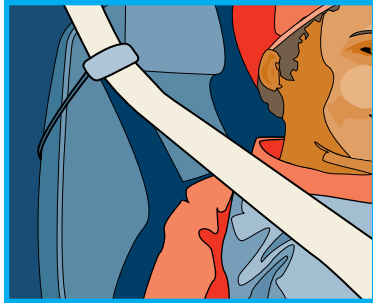
Yes! Safety belts work for pregnant women. Like all occupants, pregnant women are more likely to be injured seriously if they are not properly restrained.

When a safety belt is worn properly, it is more likely that the fetus will not be hurt in a crash. For pregnant women, as for anyone, the key to making safety belts effective is to wear them properly.

Pregnant women should wear lap-shoulder belts. The lap portion should be worn as low as possible, below the rounding, throughout the pregnancy.

Can older children use safety belts?

Older children who have outgrown booster seats should wear the vehicle's safety belts. If possible, a child should wear a lap-shoulder belt and get the additional restraint a shoulder belt can provide. The shoulder belt should not cross the face or neck. The lap belt should fit snugly below the hips, just touching the top of the thighs. It should never be worn over the abdomen, which could cause severe or even fatal internal injuries in a crash.



Some vehicles may have rear shoulder-belt comfort guides. This feature can provide added safety-belt comfort for children who have outgrown booster seats, and for small adults. When installed on a shoulder belt, the comfort guide better positions the belt away from the neck and head.



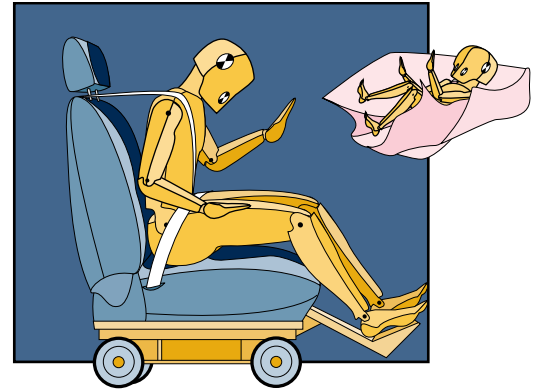
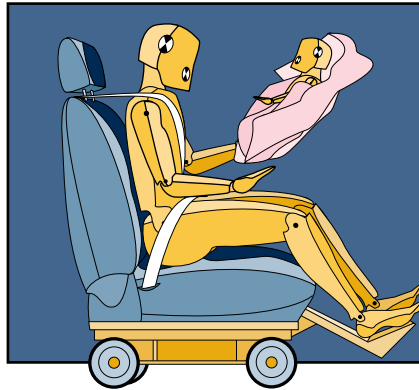
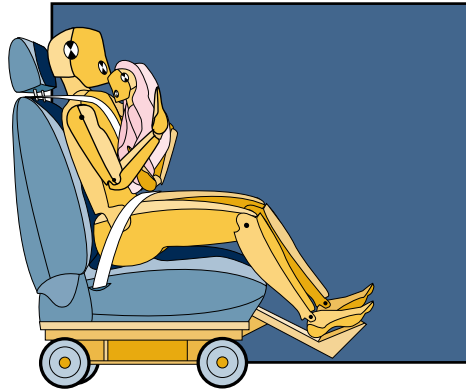
Can a person just hold a baby while riding in a motor vehicle?

People should never hold a baby in their arms while riding in a motor vehicle.

A baby does not weigh much—until a crash. During a crash, a baby will become so heavy that it is impossible to hold. For example, in a crash at only 25 miles per hour, a 12-lb. baby

will suddenly become a 240-lb. force on a person's arms.

A baby should be secured in an appropriate infant restraint. This is so important that many hospitals today require that an infant restraint be used for baby's first trip home.



What to do?

Adults everywhere share a responsibility: *take care of the children*. Children need love and protection. Placing children in specially designed child restraints helps to give them the security and protection that they need.

If you start using a restraint and always use it properly, the child is much more likely to accept the restraint as the normal way to travel. Using child restraints consistently and correctly is the key.

Starting with the first ride home from the hospital, infants and young children need the special protection that only child restraints can provide. Selecting the proper child restraint helps to make a child safer and more comfortable. The more convenient the restraint is to use, the more likely it is to be used.





Take care when selecting and purchasing an add-on child restraint. Remember:

- Check your vehicle owner's manual for any specific instructions or special equipment needed for proper installation of a child restraint.
- Before purchasing a child restraint, try the restraint out, if possible, to see whether or not it will fit properly in your vehicle.
- Since not all child restraints are the same, take the child along when shopping for a child restraint in order to try different models.
- Consider the child's age and size when selecting the proper child restraint.
- Check the instructions that come with the child restraint for weight, height, and age limitations.

- An infant car bed may be needed if the baby weighs less than about 5½ pounds.
- Most newborn infants are too small for restraints with a T- or tray-shield harness.
- Child restraint buckles are stiff to keep children from undoing them, but some may be harder to work than others.
- Be sure the child restraint has a label saying that it meets Federal Motor Vehicle Safety Standards.
- Most booster seats are designed to be used with a vehicle's lap-shoulder belt.
- Check for, and mail, the child restraint's registration card so the manufacturer can contact you in the event of a recall.





Take care when placing and installing an add-on child restraint in a motor vehicle. Remember:

- Installing a child restraint properly takes time and is of critical importance.
- Refer to all the instructions that come with the child restraint, to the section in the vehicle owner's manual on installation of child restraints, and to the labels that are on both the child restraint and the vehicle.
- Because a vehicle's rear seat is the safest place for children, it is usually the best place to install a child restraint.
- A child restraint must be used only on motor vehicle seats that face forward: do not place them on rear-facing or side-facing vehicle seats.

- In a vehicle with a passenger-side frontal air bag, never put a rear-facing infant seat in the vehicle's front seat because this places the infant in danger of death or serious injury if the air bag inflates. Some vehicles, however, have a switch that lets you turn the air bag off.
- In order to secure a child restraint in some vehicles, you may need a locking clip or a special additional belt. Check the vehicle owner's manual.
- Secure installation of a child restraint may be difficult in some deeply contoured vehicle seats, bucket seats, and raised-center rear seats.
- Always place a child restraint in a vehicle seating position where the restraint can be tightened properly and securely.

- Be sure that the child restraint is held tightly in place.
- Even when not occupied, a child restraint should remain firmly secured to the vehicle, since an unsecured child restraint could injure someone in a sudden stop or crash.



Take care when securing an infant or child into an add-on child restraint. Remember:

- The instructions provided by the child restraint manufacturer explain the proper way to secure an infant or child in that particular restraint.
- An infant's or child's back and buttocks should be flat against the back of the restraint.
- Harness straps are adjusted in different ways for different child restraints, but they need to fit snugly.
- Harness straps must remain over the child's shoulders. They should never be placed around or under the child's arms.
- The harness clip, which helps hold the shoulder straps in the correct position, should be away from the child's neck, typically at armpit level.
- When adjusting the child-restraint harness straps to a different position, be careful to secure them completely.
- Secure the harness and tighten all straps around the child before covering the child with any blankets.







Take care when traveling with an infant or child. Remember:

- Adults need to buckle their own safety belts and to insist that children are secured properly before the vehicle goes anywhere.
- Never buckle an adult and a child, or two children, in one safety belt. A belt must be used by only one person at a time.
- A young child must be secured in an appropriate child restraint; otherwise, the child should not make the trip.
- Never put the shoulder portion of a lap-shoulder belt behind the back or under the arm of the child.
- Never take an infant or child out of the child restraint while the vehicle is moving.

- In hot or sunny weather, travel with a blanket, or other covering, to throw over the restraint when it is not in use, and always check the fabric and metal buckles for heat before putting a child into the restraint.
- In winter, try to warm up the vehicle and the child restraint before securing the child in the restraint, and dress the child in clothing with arms and legs that will not interfere with buckling the harness.
- Never leave children unattended, even when sleeping, while they are in a motor vehicle.



Need additional information?

Information about child restraints is readily available. Many manufacturers have toll-free telephone numbers.

Add-on child restraint manufacturers can be called with questions about a particular restraint and how it can be used properly.

Motor vehicle manufacturers can be called to get information about a specific vehicle and how child restraints can be secured in it.

Buick	1-800-521-7300
Cadillac	1-800-458-8006
Chevrolet	1-800-222-1020
GMC	1-800-462-8782
Oldsmobile	1-800-442-6537
Pontiac	1-800-762-2737
Saab	1-800-955-9007
Saturn	1-800-553-6000

What will the future bring?

Federal, state, and local governments; a host of organizations; and manufacturers of both child restraints and motor vehicles continue to be very actively involved in child passenger safety.

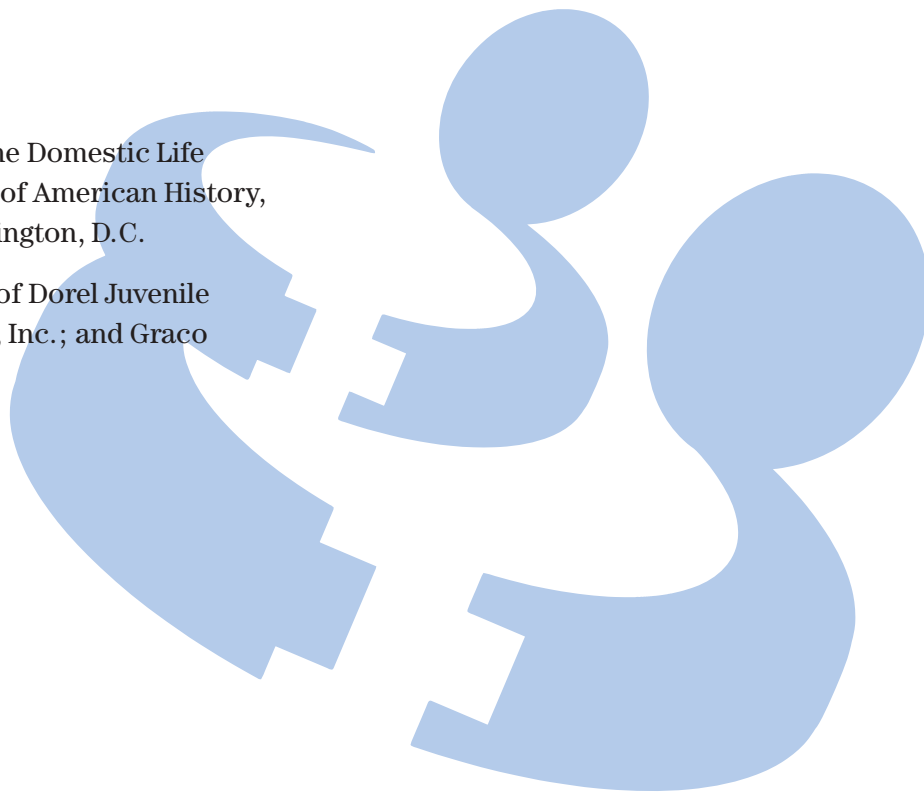
Much is happening in this field. Several years from now, child restraints may be different than the ones described in this booklet. But today's parents and other caregivers need basic information about the lifesaving systems available now. That's why we've prepared this 2002 edition of *Precious Cargo*.

No matter what child restraint systems the future brings, this will remain true: Protecting the children who ride with you is worth the time it takes to learn what to do, how to do it, and then, to do it.

Acknowledgments

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General Motors Corporation
100 Renaissance Center
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